

Rotherham NHS Foundation Trust case study: Using SNOMED CT for procedure and diagnosis recording

Summary

Rotherham NHS Foundation Trust decided to move to an electronic patient record system, replacing their PAS system in the process.

They worked closely with their chosen supplier to adapt the existing supplier product to utilise SNOMED CT throughout for both procedure and diagnosis recording. It is the first instantiation of this system in the UK and this case study aims to provide an overview of their achievements.

Organisation profile

The Rotherham NHS Foundation Trust is a modern, progressive trust, with a focus on supporting the local district. The main hospital site is situated just two miles south of Rotherham town centre. They also operate a large number of community services out of other sites across Rotherham.

The accident and emergency (A&E) department deals with around 75,000 patients per year and there are approximately 55,000 in-patient and 250,000 out-patient attendances each year.

Background

The trust decided to move to an electronic patient record (EPR) and take on a new system to assist with this. The new system utilises SNOMED CT for both procedure and diagnosis recording with SNOMED CT terms presented to the clinical staff for data entry.

It was initially released for the recording of all procedures and went live to all departments simultaneously, going live with diagnoses shortly afterwards.

Business process

The aim throughout has been for clinical ownership of the content in the patient record, and for that content to be of quality (completeness, level of detail and accuracy).



Their rationale for requiring SNOMED CT, while accepting they would be an early adopter, was to implement the national objectives of collecting data once, at source, and facilitating other process from that data. The data recorded should be to support clinical needs.

One of their main requirements has also been to improve the efficiency of the clinical coding to ICD-10 and OPCS-4 from the clinical terms, as well as have improved visibility of their out-patient activity.

Approach

Once the decision to use an EPR with SNOMED CT was made, it was decided that users would only be able to select from pre-defined lists that were approved by the clinicians in each specialty. This was achieved by creating SNOMED CT subsets which are then used by the system to provide a restricted list to users.

The reason for restricting data entry was to improve the speed of data entry, to get standardisation within the hospital on recording and so that data quality could be assured from the outset. The trust currently has around 60 subsets; one which covers all diagnoses and the remainder relating to the different specialties' procedures – each being available in the different clinical settings and selected by the system when a user logs into a particular clinic.

Two different approaches were taken when developing the subsets: one for the procedures subsets and another for the single diagnoses subset and are described below.

The procedures subsets were all developed on MS Excel spreadsheets through working collaboratively with the relevant consultant or clinical director in that specialty.

These subsets had to be manually entered into the system by the administrative staff who managed that particular module while others were created with the assistance of the UK Terminology Centre using criteria defined by the trust and the terms identified through an application using the criteria.

The procedures subsets

The procedures subsets are specialty specific and location based. They are used for scheduling and resource allocation.



When a patient is listed for a procedure the clinician:

- Decides where they would like to carry out the procedure, e.g. theatre, day-case unit or special clinic, which in turn selects the correct subset.
- They then select the appropriate clinical term from that subset.
- These two pieces of information are then used to book resources in the appropriate location.

The diagnoses subset

The diagnoses subset was created by applying a set of rules that were defined by the trust. This produced a subset of around 65,000 concepts, and contains all the descriptions for diagnoses. The preferred term is displayed as the default display description and the system allows only one description to be used as a default description for each concept, however, the search for a particular diagnosis can be performed on all the SNOMED CT diagnosis descriptions.

Using the subsets

The procedures subsets have been in operational use from day one across the trust. It was reported that there were a few problems, mainly in relation to missing content; however, these issues were quickly resolved as they were able to change the content of the subsets immediately.

Once the clinicians mastered the ability to search for the terms they required they were generally satisfied with the approach. The diagnoses subset was introduced at the beginning of August 2012.

Benefits

There was a need to schedule physical procedures so it was decided to implement procedures first. The system needed to schedule theatre time and resources. The procedures were separated into three main groups; in-patient procedures, day case procedures and clinic procedures (carried out in out-patients).

With the introduction of the system they are now able to better monitor theatre usage and resources, e.g. equipment and staff. As every procedure undertaken is being captured in a number of clinical areas, both clinical staff and management have a better view of exactly what is being performed.

This was not possible before when data in the system was recorded just at the higher level of a classification. Some procedures which may be classed as “new and innovative” can now be tracked and staff can understand the levels at which these are being done.

Efficiencies have been achieved for cases that are straightforward in terms of identifying the classification codes. In these cases the SNOMED CT entered term can be translated through software to the content for either the CDS or for clinical coding. While the latter are checked by a clinical coder, the speed of this is increased with the automatic generation of the classification codes.

The potential now exists to better support clinical audit; both through doing some analysis of the data in the system, but also identifying particular cases.

Challenges and lessons learned

As the subsets are location based, if a procedure can be carried out at different locations, which is often the case, concepts appear in multiple subsets. This not only adds unnecessary maintenance work, but because the subsets were created in isolation, different concepts may have been chosen to represent the same thing. The subsets are not linked in any way at the moment. This is being addressed manually. The initial effort to establish these was not trivial.

The diagnoses subset was created in a completely different way due to the lessons learned from the procedures subsets development. In the case of the procedures subsets, it was led by the clinicians; however, the diagnoses subset was led by the informaticians and approved by the clinicians. Diagnoses also need to be available to more than just that specialty.

As all the effort has been placed into getting the new system live along with the subsets, limited thought has been given to how the subsets will be maintained long term, bearing in mind that if the subsets are to be kept in line with SNOMED CT, then they may need to be reviewed every time a new edition is issued (currently every 6 months).

Possible methodologies for this were briefly discussed, but with all the effort still focussed on the implementation it was accepted that this is for the next phase of work.



The trust has documented how the different types of subsets were created and the criteria used, but it is not yet known if this is in sufficient detail when it comes to maintaining the subsets, especially if different individuals do the work.

The trust has access to system reports that allow them to analyse data that has been entered by individuals in order to identify data quality issues and anomalies. The trust can also review each clinician's favourites list and, when they see very generic terms on the favourites list, staff can liaise with the clinician to find out the reason behind it and try to replace them with specific terms, if possible.

The trust also has direct access to the subsets installed in the system and can change them on the fly which has proved extremely useful if a clinician notices a term is missing.

There have been some issues with the cross-maps used to translate from the SNOMED CT term to the classification code. These are being resolved as they are identified in collaboration with the National Classifications Service.



The trust does need to be able to make a temporary change to a local system until the new national maps are issued to ensure their current data is mapped as required. This facility is not currently available and so can require some post processing to data.

Training

Depending on the roles, members of staff are trained with various modules and total training time varies. Generally speaking, doctors are given seven hours of classroom based training on the system of which a limited period is dedicated to SNOMED CT.

Anecdotal reports from clinicians are that the SNOMED CT part is relatively easy and all agree that once their favourites list is populated, it is generally not an issue.

When they experience problems finding some concepts they are looking for, in the majority of cases these concepts are not in the subset. These problems are easily solved by adding the missing concepts to the subsets.

In addition clinicians are identifying content that is not in SNOMED CT and requests have been made to UKTC to have the new content added.

Training takes place six weeks before the user goes live on the system because of the amount of notice required to release clinical staff from normal duties. This is less than ideal as it has been observed that a significant amount of re-training has had to take place. The major reason for this is that end users were trained in a “TEST” environment which during roll-out could be different to the “LIVE” environment.

The other problem is the length of time between training and use of the system. The trust is, therefore, continuing to ‘floor walk’ and give one-to-one ad-hoc training wherever possible to bridge the gap between training and going live.

At the moment, the training system is not synchronised with the live system. This is mainly due to the number of code drops that were being implemented in the live system. This miss-match is inevitably causing extra problems for the training staff. However, the plan is to synchronise the two systems in the near future.

Where the development of the subsets is concerned, there was no formal training or guidance available, so it was developed as they went along. Advice, guidance and assistance were given ad hoc by the UKTC, who also helped develop some of the subsets.

Further information

- For more information on SNOMED CT visit: <http://systems.hscic.gov.uk/data/uktc/snomed>
- Get in touch information.standards@hscic.gov.uk

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